

We claim:

1. Evaporator arrangement, particularly for the production of a hydrocarbon/mixing material mixture which can be decomposed for hydrogen recovery in a reformer, including a porous evaporator medium (16; 16a), a hydrocarbon supply duct arrangement (18, 18a) for supplying hydrocarbon to the porous evaporator medium (16; 16a), and also a mixing material conducting arrangement (28; 28a) for conducting through the evaporator medium (16; 16a) at least a portion of the mixing material provided for mixture formation.
2. Evaporator arrangement according to claim 1, wherein the evaporator medium (16; 16a) has numerous mixing material passage apertures (38).
3. Evaporator arrangement according to claim 1, wherein an electrically operable heating device (20) is associated with the evaporator medium (16).
4. Evaporator arrangement according to claim 3, wherein the heating device (20) is arranged – in relation to the flow of mixing material through the evaporator medium (16) – on an upstream side of the evaporator medium (16) and in heat transfer contact therewith.
5. Evaporator arrangement according to claim 4, wherein the heating device (20) has associated with it a screening arrangement (34) to screen it off from the mixing material flowing to the evaporator medium (16)
6. Evaporator arrangement according to claim 5, wherein the screening arrangement (34) includes a screening plate (34) having mixing material passage apertures (36).
7. Evaporator arrangement according to claim 3, wherein the heating device (20) has a heating element (22) which runs at least locally curved or spirally.
8. Evaporator arrangement according to claim 7, wherein the evaporator medium (16) is at least partially arranged in a spatial region surrounded by the heating element (22).

9. Evaporator arrangement according to claim 1, wherein an electrically operable mixing material heating device (54a) is provided in an upstream region – in relation to the throughflow of the mixing material through the evaporator medium (16) – of the mixing material conducting arrangement (28) and spaced apart from the evaporator medium (16).
10. Evaporator arrangement according to claim 1, wherein a mixing/combustion chamber (40; 40a) is provided downstream of the evaporator medium (16; 16a) with respect to the flow of mixing material through the evaporator medium (16; 16a), and the mixture introduced into the said chamber (40; 40a) can be ignited therein by means of an ignition member.
11. Evaporator arrangement according to claim 1, wherein it has a heat exchanger arrangement (48; 48a) for the transfer of process heat out to the mixing material provided for mixture formation.
12. Reformer for the recovery of hydrogen from a hydrocarbon/mixing material mixture, comprising an evaporator arrangement (10; 10a) according to claim 1.
13. Reformer according to claim 12, wherein the mixing material comprises at least one of air and water vapor.
14. Heating device for heat generation by combustion of a hydrocarbon/mixing material mixture, comprising an evaporator arrangement according to claim 1, for the production of the hydrocarbon/mixing material mixture.
15. Exhaust gas purification system for purifying the gases emitted by an internal combustion engine, including an evaporator arrangement according to claim 1, for the production of a hydrocarbon/mixing material mixture.